EBERLINE SERVICES

0059109

December 10, 2002

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R2-11-117-7407, SDG H1990

Dear Ms. Kessner:

Enclosed is the data report for two other solid samples designated under SAF No. B00-055 received at Eberline Services on November 22, 2002. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

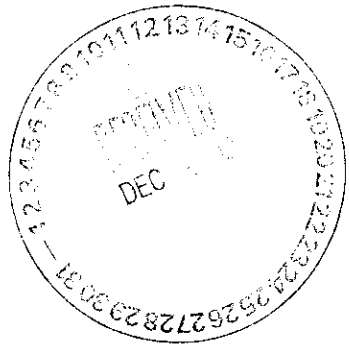
Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package



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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1990 was composed of two other solid samples designated under SAF No. B00-055 with a Project Designation of: 100-NR-1 TSD Sites R.A. Sampling – Other Solid.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on December 10, 2002.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

The LCS and method blank were not scaled to the nominal aliquot. No problems were encountered during the course of the analyses.

2.2 Total Strontium Analyses

The LCS and method blank were not scaled to the nominal aliquot. No problems were encountered during the course of the analyses.

2.4 Isotopic Plutonium Analyses

The LCS and method blank were not scaled to the nominal aliquot. No problems were encountered during the course of the analyses.

2.5 Americium-241 Analyses

The LCS and method blank were not scaled to the nominal aliquot. No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion

Melissa C. Mannion
Program Manager

12/10/02

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1990

SDG	7407
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H1990

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	12/10/02

EBERLINE SERVICES/RICHMOND

SDG 7407
Contact Melissa C. Mannion

SAMPLE DELIVERY GROUP H1990

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1990

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 12/10/02

SDG 7407
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H1990

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

SDG 7407
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1990

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J008P8	116-N-1 Crib Inlet Pipe.	SOLID		R211117-01	B00-055	B00-055-015	11/15/02 11:00
J009K8	116-N-1 Crib Inlet Pipe.	SOLID		R211117-02	B00-055	B00-055-015	11/15/02 11:10
Method Blank		SOLID		R211117-04	B00-055		
Lab Control Sample		SOLID		R211117-03	B00-055		
Duplicate (R211117-02)	116-N-1 Crib Inlet Pipe.	SOLID		R211117-05	B00-055		11/15/02 11:10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

QC SUMMARY

SDG 7407
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1990

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7407	800-055-015	J008P8	SOLID	100.0	7.27 g		11/22/02	7	R211117-01	7407-001
		J009K8	SOLID	100.0	16.39 g		11/22/02	7	R211117-02	7407-002
		Method Blank	SOLID						R211117-04	7407-004
		Lab Control Sample	SOLID						R211117-03	7407-003
		Duplicate (R211117-02)	SOLID	100.0	16.39 g		11/22/02	7	R211117-05	7407-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

PREP BATCH SUMMARY

SDG 7407
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1990

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-123	5.0	2			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-123	5.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-123	10.0	2			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-123	20.0	2			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-123	15.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-123	15.0	2			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

SDG 7407
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1990

CLIENT SAMPLE ID / LOCATION / CUSTODY	MATRIX / SAF No	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J008P8		R211117-01	7407-001	93A/93		12/04/02	12/10/02	MCM	Gross Alpha in Soil
116-N-1 Crib Inlet Pipe.	SOLID	11/15/02	7407-001	93B/93		12/04/02	12/10/02	MCM	Gross Beta in Soil
B00-055-015	B00-055	11/22/02	7407-001	AM		12/09/02	12/10/02	MCM	Americium 241 in Soil
			7407-001	GAM		12/09/02	12/10/02	MCM	Gamma Scan
			7407-001	PU		12/09/02	12/10/02	MCM	Plutonium, Isotopic in Solids
			7407-001	SR		12/04/02	12/10/02	MCM	Total Strontium in Soil
J009K8		R211117-02	7407-002	93A/93		12/04/02	12/10/02	MCM	Gross Alpha in Soil
116-N-1 Crib Inlet Pipe.	SOLID	11/15/02	7407-002	93B/93		12/04/02	12/10/02	MCM	Gross Beta in Soil
B00-055-015	B00-055	11/22/02	7407-002	AM		12/09/02	12/10/02	MCM	Americium 241 in Soil
			7407-002	GAM		12/09/02	12/10/02	MCM	Gamma Scan
			7407-002	PU		12/09/02	12/10/02	MCM	Plutonium, Isotopic in Solids
			7407-002	SR		12/04/02	12/10/02	MCM	Total Strontium in Soil
Method Blank		R211117-04	7407-004	93A/93		12/04/02	12/10/02	MCM	Gross Alpha in Soil
	SOLID		7407-004	93B/93		12/04/02	12/10/02	MCM	Gross Beta in Soil
	B00-055		7407-004	AM		12/09/02	12/10/02	MCM	Americium 241 in Soil
			7407-004	GAM		12/09/02	12/10/02	MCM	Gamma Scan
			7407-004	PU		12/09/02	12/10/02	MCM	Plutonium, Isotopic in Solids
			7407-004	SR		12/04/02	12/10/02	MCM	Total Strontium in Soil
Lab Control Sample		R211117-03	7407-003	93A/93		12/04/02	12/10/02	MCM	Gross Alpha in Soil
	SOLID		7407-003	93B/93		12/04/02	12/10/02	MCM	Gross Beta in Soil
	B00-055		7407-003	AM		12/09/02	12/10/02	MCM	Americium 241 in Soil
			7407-003	GAM		12/09/02	12/10/02	MCM	Gamma Scan
			7407-003	PU		12/09/02	12/10/02	MCM	Plutonium, Isotopic in Solids
			7407-003	SR		12/04/02	12/10/02	MCM	Total Strontium in Soil
Duplicate (R211117-02)		R211117-05	7407-005	93A/93		12/06/02	12/10/02	MCM	Gross Alpha in Soil
116-N-1 Crib Inlet Pipe.	SOLID	11/15/02	7407-005	93B/93		12/04/02	12/10/02	MCM	Gross Beta in Soil
	B00-055	11/22/02	7407-005	AM		12/09/02	12/10/02	MCM	Americium 241 in Soil
			7407-005	GAM		12/09/02	12/10/02	MCM	Gamma Scan
			7407-005	PU		12/09/02	12/10/02	MCM	Plutonium, Isotopic in Solids
			7407-005	SR		12/04/02	12/10/02	MCM	Total Strontium in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

SDG 7407
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1990

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	B00-055	Gross Alpha in Soil	900.0_ALPHABETA_GPC	2			1	1	1	5
93B/93	B00-055	Gross Beta in Soil	900.0_ALPHABETA_GPC	2			1	1	1	5
AM	B00-055	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	2			1	1	1	5
GAM	B00-055	Gamma Scan	GAMMA_GS	2			1	1	1	5
PU	B00-055	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2			1	1	1	5
SR	B00-055	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TOTALS				12			6	6	6	30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1990

R211117-04 Method Blank

METHOD BLANK

SDG 7407 Client/Case no Hanford SDG H1990
Contact Melissa C. Mannion Contract No. 630

Lab sample id R211117-04 Client sample id Method Blank
Dept sample id 7407-004 Material/Matrix SOLID
SAF No B00-055

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.097	0.22	0.39	10	U	93A
Gross Beta	12587-47-2	0.240	0.40	0.65	15	U	93B
Total Strontium	SR-RAD	-0.020	0.17	0.35	1.0	U	SR
Plutonium 238	13981-16-3	0	0.028	0.11	1.0	U	PU
Plutonium 239/240	PU-239/240	0.014	0.057	0.11	1.0	U	PU
Americium 241	14596-10-2	0.032	0.063	0.081	1.0	U	AM
Potassium 40	13966-00-2	U		7.9		U	GAM
Cobalt 60	10198-40-0	U		0.64	0.050	U	GAM
Cesium 137	10045-97-3	U		0.52	0.10	U	GAM
Radium 226	13982-63-3	U		0.98		U	GAM
Radium 228	15262-20-1	U		2.2		U	GAM
Europium 152	14683-23-9	U		1.1	0.10	U	GAM
Europium 154	15585-10-1	U		2.0	0.10	U	GAM
Europium 155	14391-16-3	U		0.86	0.10	U	GAM
Thorium 228	14274-82-9	U		0.59		U	GAM
Thorium 232	TH-232	U		2.2		U	GAM
Uranium 235	15117-96-1	U		1.4		U	GAM
Uranium 238	U-238	U		74		U	GAM
Americium 241	14596-10-2	U		0.98		U	GAM

100-NR-1 TSD Sites R.A. Smpl.-Other

QC-BLANK 43253

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

R211117-03 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7407 Client/Case no Hanford SDG H1990

Contact Melissa C. Mannion Contract No. 630

Lab sample id R211117-03 Client sample id Lab Control Sample

Dept sample id 7407-003 Material/Matrix SOLID

SAF No B00-055

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	23.2	1.5	0.36	10		93A	20.0	0.80	116	63-137	70-130
Gross Beta	21.5	1.1	0.78	15		93B	21.3	0.85	101	75-125	70-130
Total Strontium	23.8	1.2	0.37	1.0		SR	21.3	0.85	112	80-120	80-120
Plutonium 238	12.4	1.3	0.13	1.0		PU	12.2	0.49	102	81-119	80-120
Plutonium 239/240	14.0	1.5	0.13	1.0		PU	13.2	0.53	106	80-120	80-120
Americium 241	10.1	1.2	0.15	1.0		AM	9.53	0.38	106	79-121	80-120
Cobalt 60	33.0	1.6	0.83	0.050		GAM	32.0	1.3	103	75-125	80-120
Cesium 137	44.4	1.5	0.96	0.10		GAM	41.3	1.7	108	74-126	80-120

100-NR-1 TSD Sites R.A. Smpl.-Other

QC-LCS 43252

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

R211117-05 J009K8

DUPLICATE

SDG 7407 Client/Case no Hanford SDG H1990

Contact Melissa C. Mannion Contract No. 630

DUPLICATE		ORIGINAL			
Lab sample id	R211117-05	Lab sample id	R211117-02	Client sample id	J009K8
Dept sample id	7407-005	Dept sample id	7407-002	Location/Matrix	116-N-1 Crib Inlet Pipe. SOLID
		Received	11/22/02	Collected/Weight	11/15/02 11:10 16.39 g
% solids	100.0	% solids	100.0	Custody/SAF No	B00-055-015 B00-055

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	794	86	26	10		93A	966	95	35		20	48
Gross Beta	26800	340	64	15		93B	27800	350	66		4	32
Total Strontium	4460	140	34	1.0		SR	4530	150	39		2	22
Plutonium 238	73.0	21	11	1.0		PU	81.1	27	14		11	67
Plutonium 239/240	492	65	11	1.0		PU	457	71	14		7	32
Americium 241	245	37	8.7	1.0		AM	246	45	13		0	37
Potassium 40	U		210		U	GAM	U		220	U	-	
Cobalt 60	38600	120	71	0.050		GAM	38700	120	72		0	32
Cesium 137	5840	62	59	0.10		GAM	5530	54	54		5	32
Radium 226	U		60		U	GAM	U		61	U	-	
Radium 228	U		220		U	GAM	U		230	U	-	
Europium 152	U		71	0.10	U	GAM	U		71	U	-	
Europium 154	U		91	0.10	U	GAM	U		110	U	-	
Europium 155	U		38	0.10	U	GAM	U		39	U	-	
Thorium 228	U		28		U	GAM	U		28	U	-	
Thorium 232	U		220		U	GAM	U		230	U	-	
Uranium 235	U		63		U	GAM	U		64	U	-	
Uranium 238	U		6700		U	GAM	U		6800	U	-	
Americium 241	U		840		U	GAM	U		790	U	-	

100-NR-1 TSD Sites R.A. Smpl.-Other

QC-DUP#2 43254

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 12/10/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1990

R211117-01 **J008P8**

DATA SHEET

SDG	7407	Client/Case no	Hanford SDG H1990
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211117-01	Client sample id	J008P8
Dept sample id	7407-001	Location/Matrix	116-N-1 Crib Inlet Pipe. SOLID
Received	11/22/02	Collected/Weight	11/15/02 11:00 7.27 g
% solids	100.0	Custody/SAF No	B00-055-015 B00-055

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Gross Alpha	12587-46-1	8810	620	150	10		93A
Gross Beta	12587-47-2	19700	690	270	15		93B
Total Strontium	SR-RAD	4650	320	160	1.0		SR
Plutonium 238	13981-16-3	741	140	53	1.0		PU
Plutonium 239/240	PU-239/240	4620	440	42	1.0		PU
Americium 241	14596-10-2	2680	400	75	1.0		AM
Potassium 40	13966-00-2	U		130		U	GAM
Cobalt 60	10198-40-0	13400	70	34	0.050		GAM
Cesium 137	10045-97-3	2020	32	32	0.10		GAM
Radium 226	13982-63-3	U		37		U	GAM
Radium 228	15262-20-1	U		140		U	GAM
Europium 152	14683-23-9	37.8	29	43	0.10	U	GAM
Europium 154	15585-10-1	531	62	70	0.10		GAM
Europium 155	14391-16-3	166	24	31	0.10		GAM
Thorium 228	14274-82-9	U		17		U	GAM
Thorium 232	TH-232	U		140		U	GAM
Uranium 235	15117-96-1	U		40		U	GAM
Uranium 238	U-238	U		4100		U	GAM
Americium 241	14596-10-2	U		5100		U	GAM

100-NR-1 TSD Sites R.A. Smpl.-Other

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 11

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/10/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1990

R211117-02 **J009K8**

DATA SHEET

SDG	7407	Client/Case no	Hanford SDG H1990
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211117-02	Client sample id	J009K8
Dept sample id	7407-002	Location/Matrix	116-N-1 Crib Inlet Pipe. SOLID
Received	11/22/02	Collected/Weight	11/15/02 11:10 16.39 g
% solids	100.0	Custody/SAF No	B00-055-015 B00-055

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	966	95	35	10		93A
Gross Beta	12587-47-2	27800	350	66	15		93B
Total Strontium	SR-RAD	4530	150	39	1.0		SR
Plutonium 238	13981-16-3	81.1	27	14	1.0		PU
Plutonium 239/240	PU-239/240	457	71	14	1.0		PU
Americium 241	14596-10-2	246	45	13	1.0		AM
Potassium 40	13966-00-2	U		220		U	GAM
Cobalt 60	10198-40-0	38700	120	72	0.050		GAM
Cesium 137	10045-97-3	5530	54	54	0.10		GAM
Radium 226	13982-63-3	U		61		U	GAM
Radium 228	15262-20-1	U		230		U	GAM
Europium 152	14683-23-9	U		71	0.10	U	GAM
Europium 154	15585-10-1	U		110	0.10	U	GAM
Europium 155	14391-16-3	U		39	0.10	U	GAM
Thorium 228	14274-82-9	U		28		U	GAM
Thorium 232	TH-232	U		230		U	GAM
Uranium 235	15117-96-1	U		64		U	GAM
Uranium 238	U-238	U		6800		U	GAM
Americium 241	14596-10-2	U		790		U	GAM

100-NR-1 TSD Sites R.A. Smpl.-Other

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test AM Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7052-123					
J008P8	R211117-01			7407-001	2680
J009K8	R211117-02			7407-002	246
BLK (QC ID=43253)	R211117-04			7407-004	U
LCS (QC ID=43252)	R211117-03			7407-003	ok
Duplicate (R211117-02)	R211117-05			7407-005	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
100-NR-1 TSD Sites R.A. Smpl.-Other					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 123												
J008P8	R211117-01			75	0.0020			41		177			24	12/09/02	12/09	SS-043
J009K8	R211117-02			13	0.0100			46		177			24	12/09/02	12/09	SS-044
BLK (QC ID=43253)	R211117-04			0.081	1.00			77		176				12/09/02	12/09	SS-048
LCS (QC ID=43252)	R211117-03			0.15	1.00			42		175				12/09/02	12/09	SS-047
Duplicate (R211117-02) (QC ID=43254)	R211117-05			8.7	0.0100			80		176			24	12/09/02	12/09	SS-049
Nominal values and limits from method				1.0	1.00			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	19	± 63
FOR 5 SAMPLES	YIELD	57	± 39

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test PU Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7052-123						
J008P8	R211117-01			7407-001	741	4620
J009K8	R211117-02			7407-002	81.1	457
BLK (QC ID=43253)	R211117-04			7407-004	U	U
LCS (QC ID=43252)	R211117-03			7407-003	ok	ok
Duplicate (R211117-02)	R211117-05			7407-005	ok	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
100-NR-1 TSD Sites R.A. Smpl.-Other						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123	2σ prep error 5.0 %	Reference Lab Notebook 7052 pg. 123														
J008P8	R211117-01			53	0.0020			65		208			24	12/09/02	12/09	SS-033
J009K8	R211117-02			14	0.0100			71		119			24	12/09/02	12/09	SS-042
BLK (QC ID=43253)	R211117-04			0.11	1.00			64		176				12/09/02	12/09	SS-050
LCS (QC ID=43252)	R211117-03			0.13	1.00			74		120				12/09/02	12/09	SS-024
Duplicate (R211117-02) (QC ID=43254)	R211117-05			11	0.0100			63		172			24	12/09/02	12/09	SS-058
Nominal values and limits from method				1.0	1.00			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 5
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	16	±	44
	YIELD	67	±	10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test SR Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-123					
J008P8	R211117-01			7407-001	4650
J009K8	R211117-02			7407-002	4530
BLK (QC ID=43253)	R211117-04			7407-004	U
LCS (QC ID=43252)	R211117-03			7407-003	ok
Duplicate (R211117-02)	R211117-05			7407-005	ok
Nominal values and limits from method 100-NR-1 TSD Sites R.A. Smpl.-Other				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 123																
J008P8	R211117-01			160	0.0020			55		100			19	12/04/02	12/04	GRB-218
J009K8	R211117-02			39	0.0100			81		100			19	12/04/02	12/04	GRB-206
BLK (QC ID=43253)	R211117-04			0.35	1.00			73		100				12/04/02	12/04	GRB-229
LCS (QC ID=43252)	R211117-03			0.37	1.00			74		57				12/04/02	12/04	GRB-230
Duplicate (R211117-02) (QC ID=43254)	R211117-05			34	0.0100			83		100			19	12/04/02	12/04	GRB-221
Nominal values and limits from method				1.0	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 5
	CP-502	Strontium in Solids, rev 6

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	47	±	130
	YIELD	73	±	22

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test 93A Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-123					
J008P8	R211117-01	93		7407-001	8810
J009K8	R211117-02	93		7407-002	966
BLK (QC ID=43253)	R211117-04	93		7407-004	U
LCS (QC ID=43252)	R211117-03	93		7407-003	ok
Duplicate (R211117-02)	R211117-05	93		7407-005	ok
Nominal values and limits from method				RDLs (pCi/g)	10
100-NR-1 TSD Sites R.A. Smpl.-Other					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123	2σ prep error 20.0 %	Reference Lab Notebook 7052 pg. 123														
J008P8	R211117-01	93		150	0.0020			2	100				19	12/04/02	12/04	GRB-114
J009K8	R211117-02	93		35	0.0100			9	100				19	12/04/02	12/04	GRB-115
BLK (QC ID=43253)	R211117-04	93		0.39	1.00			21	100					12/04/02	12/04	GRB-115
LCS (QC ID=43252)	R211117-03	93		0.36	1.00			20	100					12/04/02	12/04	GRB-114
Duplicate (R211117-02) (QC ID=43254)	R211117-05	93		26	0.0100			9	100				21	12/04/02	12/06	GRB-114
Nominal values and limits from method				10	1.00			5-250	100				180			

PROCEDURES
REFERENCE 900.0_ALPHABETA_GPC
CP-070 Soil Dissolution, < 1.0g Aliquot, rev 5
CP-125 Gross Alpha and Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 42 ± 120
RESIDUE 12 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test 93B Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-123					
J008P8	R211117-01	93		7407-001	19700
J009K8	R211117-02	93		7407-002	27800
BLK (QC ID=43253)	R211117-04	93		7407-004	U
LCS (QC ID=43252)	R211117-03	93		7407-003	ok
Duplicate (R211117-02)	R211117-05	93		7407-005	ok
Nominal values and limits from method				RDLs (pCi/g)	15
100-NR-1 TSD Sites R.A. Smpl.-Other					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 123																
J008P8	R211117-01	93		270	0.0020			2	100				19	12/04/02	12/04	GRB-109
J009K8	R211117-02	93		66	0.0100			9	100				19	12/04/02	12/04	GRB-105
BLK (QC ID=43253)	R211117-04	93		0.65	1.00			21	100					12/04/02	12/04	GRB-115
LCS (QC ID=43252)	R211117-03	93		0.78	1.00			20	100					12/04/02	12/04	GRB-114
Duplicate (R211117-02) (QC ID=43254)	R211117-05	93		64	0.0100			9	100				19	12/04/02	12/04	GRB-115
Nominal values and limits from method				15	1.00			5-250	100				180			

PROCEDURES	REFERENCE	
	900.0_ALPHABETA_GPC	
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 5
	CP-125	Gross Alpha and Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 80 ± 220
RESIDUE 12 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/10/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1990

Test GAM Matrix SOLID
SDG 7407
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1990

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-123						
J008P8	R211117-01			7407-001	13400	2020
J009K8	R211117-02			7407-002	38700	5530
BLK (QC ID=43253)	R211117-04			7407-004	U	U
LCS (QC ID=43252)	R211117-03			7407-003	ok	ok
Duplicate (R211117-02)	R211117-05			7407-005	ok	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
100-NR-1 TSD Sites R.A. Smpl.-Other						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-123 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 123																
J008P8	R211117-01			200	5.66					121			24	12/05/02	12/09	SP,03,00
J009K8	R211117-02			350	7.20					101			24	12/05/02	12/09	SP,03,00
BLK (QC ID=43253)	R211117-04			3.8	5.66					160				12/05/02	12/09	SP,04,00
LCS (QC ID=43252)	R211117-03			0.83	5.66					614				12/05/02	12/09	SP,03,00
Duplicate (R211117-02) (QC ID=43254)	R211117-05			320	7.20					105			24	12/05/02	12/09	SP,03,00
Nominal values and limits from method				0.050	5.66					100			180			

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 170 ± 330
YIELD ____ ± ____

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SDG 7407
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SAMPLE DELIVERY GROUP H1990

REPORT GUIDE

Client Hanford
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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Version 3.06
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SDG 7407
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1990

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Contact Melissa C. Mannion

REPORT GUIDE

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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GUIDE, cont.

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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GUIDE, cont.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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REPORT GUIDE

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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SDG 7407
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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REPORT GUIDE

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-055-015	Page 1 of 1

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
R B Kerkow	R B Kerkow 373-9123	TRENT, SJ	Price Code 7K / Data Turnaround
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
100-NR-1 TSD Sites R. A. Sampling - Other Solid	116-N-1 Crib Inlet pipelines (36" and 12") H1990 (7407)	B00-055	15 DAYS
Ice Chest No.	**Field Logbook No.** / **COA**	**Method of Shipment**	
ERC-01-025	EL-1524-2 / R1301N2600	FED EX	
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	
TMA/~~HEGRA~~ RK 11-15-02	RSR # 106977		

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially Radioactive

RADIOACTIVE

Special Handling and/or Storage

None

Preservation	None											
Type of Container	~~Marinelli~~ VIAL	RK 11-15-02										
No. of Container(s)	1											
Volume	~~500mL~~ 20 mL	RK 11-15-02										
SAMPLE ANALYSIS	See item (1) in Special Instructions.									TIE TO:		

Sample No.	Matrix *	Sample Date	Sample Time									
J008P8	OTHER SOLID	11-15-02	1100	X							J008P7	36"
J009K8	OTHER SOLID	11-15-02	1110	X							J009K7	12"

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
~~RB KERKOW~~/RB Kerkow	1540 11/15/02	REF 1A RB KERKOW	1540 11/15/02
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
3728 Ref 1A	11/21/02 0700	David St. John	11/21/02 0700
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
David St. John ERC	11/21/02 0700	FED EX	11/21/02 0700
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Express	11/22/02		11/22/02 10:00
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
	11/22/02		11/22/02 10:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Lab COA: R1301N2P00

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Isotopic Plutonium; Americium-241; Strontium-89,90 -- Total Sr; ~~Nickel-63, Tritium-H3~~ RK 11-15-02

DELETE

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/21/02

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Wes - Hanford Bechtel Date/Time received 11/22/02

CoC No. B00-055-015

Container I.D. No. ERC-01-025 Requested TAT (Days) 15 Days P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [✓]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [✓]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [✓]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [✓]	No [ ]	N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [✓]	
6.	Number of samples in shipping container: 2			
7.	Number of containers per sample: 1 (Or see CoC)			
8.	Paperwork agrees with samples?	Yes [✓]	No [ ]	
9.	Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]			
10.	Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]			
11.	Describe any anomalies:			
13.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date 11/22/02			
14.	Received by [signature] Date: Time: 10:00			

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____